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July 30, 2008

John Carman, Rodgers Consulting
Chairman
Montgomery County BRAC Implementation Committee
Office of the County Executive
101 Monroe Street, 2nd Floor
Rockville, MD 20850

Dear Mr. Carman,

Thank you for your continued support of the Base Realignment and Closure at the Bethesda National Naval Medical Center (NNMC). A coordinated effort between the federal, State and local governments is essential to preserving our quality of life, addressing community concerns and ensuring the success of the Department of Defense's consolidation.

Attached for your information is the Maryland State Highway Administration's (SHA) Discussion Paper on proposed Beltway access to NNMC campus, which was discussed at the Montgomery County BRAC Implementation Committee's July 29, 2008 meeting. As you will recall, the State's BRAC Action Plan called for such a review, in response to questions raised by the community.

As explained in the paper, SHA concluded that an additional access point from the Capital Beltway to NNMC is not a viable option due to safety, traffic operations and environmental permitting issues. SHA concluded that the project would not meet federal statutory and regulatory requirements intended to protect the safety and operational integrity of the Interstate Highway System by ensuring proper spacing and safe weaving distances. The proposed ramp would not meet the minimum spacing requirements between interchanges in urban areas. In addition, SHA also concluded it would also contribute to traffic merges that would create an unsafe condition. With likely impacts to two parks and Rock Creek, environmental issues also make approval of a new access ramp unlikely, particularly given presence of other feasible roadway improvement alternatives and analysis showing limited traffic relief.

As discussed at the committee meeting, staff from both Montgomery County Department of Public Works and Transportation and Maryland-National Park and Planning Commission had previously reviewed a draft of the paper and concurred with the report's conclusions. It is also important to note that – prior to this review - the Navy had not recommended a Beltway Slip ramp for security and traffic operations concerns.

We will continue to update your committee on State BRAC implementation efforts. As several committee members expressed during the meeting, it is critical to prioritize improvements that can be implemented in the near-term. The BRAC implementation deadline of 2011 is a challenge to constructing needed transportation infrastructure. SHA is moving expeditiously to plan, design and construct improvements to BRAC-impacted intersections, with $45 million programmed in the Maryland Department of Transportation's 2008 Consolidated Transportation Program. We are also working with the Washington Metropolitan Area Transit Authority and Bethesda-NNMC to consider transit access improvements and have designated $400,000 for transit feasibility and service studies. Focusing on lower-cost projects that can be implemented quickly is a critical strategy for addressing BRAC statewide.

Thank you again for your support. Please let me know if you have any questions or if I may be of any assistance.

Sincerely,

Andrew J. Scott
Special Assistant to the Secretary for
Economic Development

cc: Mr. Phil Alperson, Montgomery County BRAC Coordinator
Mr. Shahriar Etemadi, Transportation Planning, M-NCPPC
Mr. Edgar Gonzalez, Deputy Director, Montgomery County DPWT
Mr. Billy Hwang, BRAC Coordinator, MDOT
Mr. Neil Pedersen, Administrator, State Highway Administration

Discussion Paper
Bethesda National Naval Medical Center Beltway Ramp Access
Maryland State Highway Administration
July 2008

Introduction

This discussion paper presents the results of the Maryland State Highway Administration's (SHA) review of a proposed new access point on I-495 (the Capital Beltway) between the existing Wisconsin Avenue/Rockville Pike (MD 355) and Connecticut Avenue (MD 185) interchanges with I-495. The SHA has developed this discussion paper to better understand the technical and environmental issues associated with the potential construction of a new access point.

The National Naval Medical Center (NNMC) Campus in Bethesda borders the Capital Beltway (I-495) between Wisconsin Avenue/Rockville Pike (MD 355) and Connecticut Avenue (MD 185). Local officials, citizens, and stakeholder groups have expressed interest in a new dedicated entrance/exit or "slip ramp" to the campus from the eastbound (inner loop) Capital Beltway to provide more direct access and to decrease the amount of traffic on arterial roadways surrounding the campus. It should be noted that a new access point in this location is not currently included in any of the region's master plans.

In its December 14, 2007 Draft Environmental Impact Statement (DEIS), the Navy evaluated and presented results on the potential impact of a new access point with a slip ramp from the Capital Beltway. The Navy identified the potential construction of a new access point as a long-term regional issue rather than an improvement related to BRAC mitigation, and further did not recommend the installation of Beltway Slip ramps to or from the NNMC campus (*NNMC DEIS*, 4.7.4.2, p. 4-52) for security and traffic operations reasons (*NNMC DEIS*, App. C, 4.5.2, p. 68). In subsequent discussions with MDOT, the Navy has expressed concern about the security measures it would be required to implement to accommodate vehicles using a new access point directly from the Beltway. The logistics and capital and operating costs to implement a new security check point on its grounds would be significant challenges for the Navy.

A discussion of the major issues associated with this concept is presented below:

I. Interstate Access Point Approval and Traffic Safety Issues

23 U.S.C. § 111 provides that States will not add any points of access to, or exit from, the interstate highway system without the prior approval of the United States Secretary of Transportation. The Secretary has delegated the authority to administer 23 U.S.C. § 111 to the Federal Highway Administrator. Therefore, provision of any new or revised access to an interstate highway (Interstate Access Point Approval, or IAPA) requires approval from the Federal Highway Administration (FHWA) and constitutes a federal action. FHWA approval is a two-step process that consists of concept approval and final approval. Concept approval is requested from FHWA with an Access Justification Report (AJR). Following concept approval and fulfillment of National Environmental Policy Act (NEPA) requirements, final approval is contemplated, assuming no significant changes have been made to the original access concept. Final approval is necessary regardless of whether the project(s) that will create the new or

revised interstate access receive federal funding. The fundamental tenet underlying the IAPA process is the protection of the integrity, operation, and safety of the interstate system by ensuring proper spacing and safe weaving distances.

Interstate interchanges and access modifications are considered when conflicting high traffic volumes exceed those that can be handled efficiently and safely with at-grade intersections. They are also used to control access to a primary highway. Slip ramps typically consist of diagonal ramps connecting the principal highway with a parallel frontage road.

23 C.F.R. § 625 provides that the design standards contained in *A Policy on Geometric Design of Highways and Streets, AASHTO 2001* be used for roadway projects. Under AASHTO standards, the minimum interchange spacing is one mile in urban areas and two miles in rural areas. Currently, there are two separate entrances to the Capital Beltway from I-270 and MD 355, in close proximity to one another, located on the Inner Loop (eastbound), as shown in **Figure 1**. With 1.15 miles in between the two existing access points at I-270 and MD 185, a new access point would decrease interchange spacing so that it would fall below the one-mile AASHTO standard. In addition, while spacing of less than one mile may be permissible in urban areas with the provision of grade-separated ramps or by adding collector-distributor (C-D) roads to accommodate weaving traffic flows, providing these design elements typically adds significantly to the complexity and cost of an interchange project.

The I-270/MD 355/Capital Beltway interchange is a complex system with successive left-entering merge conditions and significant weaving movements in a highly congested area. Based on traffic count data collected in September 2005, the eastbound I-495 AM peak hour vehicle volume is approximately 7,000 vehicles, which equates to a level of service (LOS) E for the segment between I-270/MD 355 and MD 185. Adding a new access point in the short segment between this interchange and the MD 185/Capital Beltway interchange (approximately $^{9}/_{10}$ mile from the I-270/MD 355 beltway access point and ¼ mile from the MD 185 access point) would further complicate the traffic conditions in this area, and present significant operational and safety concerns. Traffic entering the Capital Beltway from the I-270 and MD 355 ramps would be required to merge into traffic traveling eastbound from the west and then quickly weave across up to four travel lanes to exit at a new NNMC access ramp. Although the amount of traffic that would choose to make this weaving movement is not accurately known, the Navy's traffic study indicates that approximately 68% of the traffic volume that would use the new access point would originate on I-270. Thus, it is very likely that the amount of new traffic that would be added to the mix of traffic traveling eastbound and from I-270/MD 355 to the new access point would degrade the operations of the interstate.

The situation described above is similar to the maneuver that is currently needed to exit at MD 185 from the I-270/MD 355 access point, within approximately one mile after entering the Capital Beltway from I-270/MD 355 on the west. Aside from the potential traffic safety concern, as explained above, this new traffic movement would also pose additional Beltway traffic flow problems. A new slip ramp access to NNMC would not only disturb traffic flow from traffic weaving and merging across multiple lanes in such a short distance; it would also be further complicated by the curving horizontal alignment of the Beltway between the I-270 East Spur entrance and the MD 185 interchange. Having three or four interstate access points so close to

one another would likely degrade the integrity of the interstate system by increasing the complexity of the roadway system and presenting both safety and flow concerns due to multiple weaving conflicts. For these reasons, SHA concur with the Navy and does not recommend that Interstate Access Point Approval (IAPA) from FHWA be pursued.

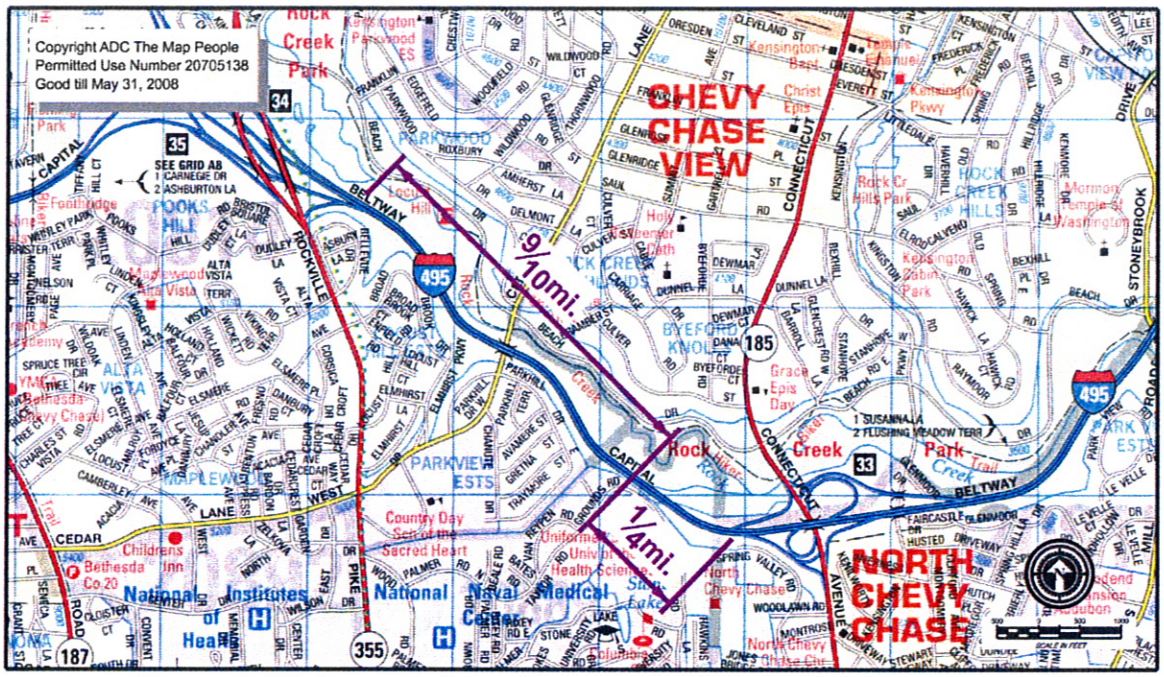

Figure 1: Distances Between Existing I-495 Interchanges and Possible Location of Proposed New Access Point

II. Travel Demand and Traffic Relief Issues

The SHA evaluated the potential traffic demand for a slip ramp and the diversion of traffic to a proposed ramp from other roadways in the network, based on the findings in the Navy's DEIS traffic study. The traffic study was conducted using both Critical Lane Analysis (CLA) and LOS approach to determine the capacity of intersections in the study area with a Beltway slip ramp in place.

CLA was used to generate intersection Critical Lane Volume (CLV) for the intersections surrounding NNMC. The CLV was then compared to the CLV standard for Montgomery County, where 1,600 vehicles is the maximum lane capacity per hour. The LOS approach defines intersection capacity through the use of a rating system. Ratings range from LOS A to F, where LOS A represents intersections with minimal delays and LOS F represents intersections that are over capacity with excessive delays and long queues. Generally LOS ratings of A through D are acceptable, while E, which is approaching capacity, is also acceptable in some jurisdictions, including Montgomery County.

Table 1 below shows the results of the Navy's traffic study for the AM and PM CLVs and Levels of Service (LOS) for intersections surrounding the NNMC, for both the No-Build and Slip Ramp scenarios, as presented in its March 2008 FEIS. It also presents the percent decrease in CLV from No-Build to Slip Ramp conditions.

Table 1: AM and PM CLV and LOS for the 2011 No-Build and Slip Ramp Scenarios

Intersection	No-Build AM CLV/LOS	AM CLV/LOS with Slip Ramps	Percent Decrease in CLV	No-Build PM CLV/LOS	PM CLV/LOS with Slip Ramps	Percent Decrease in CLV
Grosvenor Lane & Rockville Pike	1331/C/D	1320/C/D	0.83%	1097/B	1085/B	1.09%
West Cedar Lane & Rockville Pike	2100/F	2079/F	1.00%	1822/F	1841/F	1.04% increase in CLV
Jones Bridge Road & Rockville Pike	1365/D	1365/D	0.00%	1722/F	1722/F	0.00%
Jones Bridge Road & Connecticut Avenue	1559/E	1543/E	1.03%	2078/F	2038/F	1.92%

Source: Final Environmental Impact Statement For Activities to Implement 2005 Base Realignment and Closure Actions At National Naval Medical Center Bethesda, Maryland, March 2008

Adding a new access point to the NNMC campus would not significantly decrease traffic volumes at the intersections shown in **Table 1**. Failing intersections still fail, and improvements in traffic operations are incremental at best with or without a slip ramp available. At most, there would be a 1.9 percent decrease in PM CLV at the Jones Bridge Road and Connecticut Avenue intersection, which still results in a failing level of service with a mere 40-vehicle per hour decrease in traffic.

Contrary to the assumption that providing direct access from the Capital Beltway to the NNMC campus would divert traffic from other major access roads and thereby allow intersections on these roads to operate at a better level of service, the original Navy traffic study provided data showing that estimated 2011 traffic volumes that would be diverted from existing gates due to a new access point would not be significant. As this original Navy traffic study only took into account the BRAC-related eastbound traffic that may use the slip ramp, SHA traffic engineers assumed that 50 percent of all of the traffic destined to NNMC, including both existing traffic and BRAC traffic, would use this ramp to access NNMC from the Capital Beltway. Assuming that vehicles entering NNMC via this route would exit via the reverse route, the estimated total amount of traffic that would be diverted from the existing gates along MD 355 and Jones Bridge Road is shown in **Table 2**:

Table 2: Estimated 2011 Volumes Diverted from Existing Gates with a New Access Point

	AM Peak Hour (vehicles)	PM Peak Hour (vehicles)
Entering Volume	630	230
Exiting Volume	195	600

It is estimated that approximately 11,000 vehicles enter the grounds daily at NNMC presently with its current population of 1,900 civilians, 2,700 military personnel, 497,000 annual

outpatient visits, and 7,700 annual admissions ("BRAC Growth – Facts and Figures," *Maryland Department of Business and Economic Development*, May 16, 2008). The Navy's DEIS traffic analysis used a conservative assumption of growth that examined the potential transportation impacts of accommodating 2,500 new employees at NNMC by 2011 (*NNMC DEIS*, 4.7, p. 4-36). The 2011 projected traffic volume on southbound MD 355 just south of the MD 355 and Cedar Lane intersection (approaching the main entrances to NNMC) is expected to be approximately 4,055 vehicles during the AM peak hour with 1,275 of those vehicles entering the NNMC gates. If, in accordance with **Table 2**, approximately 600 vehicles divert from the existing gates during the peak hour with the addition of a new interstate access to the NNMC campus, the effects of the diversion on the critical lane volumes shown in **Table 1** would not be significant. This would hardly be a cost-effective solution to the traffic problems posed by BRAC. In addition, because these vehicles may be coming from a variety of locations using a variety of routes, the diversion of these vehicles to the new access point would not result in a reduction of 600 vehicles at any one location. Instead, it could be a reduction of 150 vehicles at one location, 75 at another, and so on.

Therefore, it is unlikely that a new access point would provide significant relief to surrounding roadways because the effect of the diversion is diluted throughout the system due to the multitude of routes to and from the NNMC campus. While more detailed studies would need to be conducted to determine what impacts this concept may have on the existing I-495/MD 185 interchange and other nearby locations, it is anticipated that the intersections included in the study would continue to operate at similar levels of service, with or without slip ramps that provide a direct connection to the NNMC. It is also important to note that while the vast majority of new traffic resulting from the BRAC action will be in the system by 2011, it would not be possible to construct a slip ramp(s) until much later than that.

III. Environmental Issues

Section 4(f) of the U.S. Department of Transportation (U.S. DOT) Act stipulates that the FHWA and other U.S. DOT agencies cannot approve the use of land from a significant publicly-owned public park, recreation area, wildlife or waterfowl refuge, or any significant historic site for a transportation purpose unless there is no feasible and prudent alternative to the use of that land, and the action includes all possible planning to minimize harm to the property resulting from the transportation use. Two parks are located in the area adjacent to NNMC, Rock Creek Park and North Chevy Chase Park, both of which would likely be impacted by a potential new access ramp. Some portions of the area between the MD 355 and MD 185 interchanges feature steep topography (up to an approximate 2:1 slope), which may require regrading for slip ramp construction to meet AASHTO requirements. A tributary to the Rock Creek is also present, which would result in stream impacts and could require the construction of a structure for a proposed ramp. County and private property, including established residences, may also be impacted. Given the fact that other feasible roadway improvement alternatives exist, and that the traffic studies have shown a limited amount of traffic relief from a potential new access ramp, it is even more unlikely that FHWA would approve the use of this parkland for a new interstate access point.

Summary

Due to the existing complexity of the Capital Beltway between I-270 and MD 185, adding a new access point at this location would further complicate traffic flow and create additional safety concerns due to weaving conflicts. In addition, the environmental constraints associated with a new access point could be significant. The traffic analyses conducted by the Navy and SHA show that the operational effectiveness of a direct access ramp on local traffic congestion would be limited, at best, due to several identified traffic flow and safety concerns. Given the current traffic operations and volumes associated with the MD 355 and MD 185 Beltway Inner Loop ramps and the issues presented in this discussion paper, SHA does not consider an additional interstate access point from the Capital Beltway to the NNMC to be a viable option for consideration and will not pursue an IAPA from FHWA.